

**UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE**

**ECOLOGICAL SITE DESCRIPTION**

**ECOLOGICAL SITE CHARACTERISTICS**

**Site Type:** Rangeland

**Site ID:** R039XB016NM

**Site Name:** Shallow Hills

**Precipitation or Climate Zone:** 14 to 18 inches

**Phase:**

## **PHYSIOGRAPHIC FEATURES**

### **Narrative:**

The terrain, in which this site occurs, is rolling or hilly, sometimes steep. Slopes average about 15 percent but range from 10 percent to just over 40 percent. Exposed bedrock and ledges occur occasionally and exposure varies. Elevations typically range upward from 7,000 feet above sea level.

### **Land Form:**

1. Hill

2.

3.

### **Aspect:**

1. North – east

2. South - west

3.

	<b>Minimum</b>	<b>Maximum</b>
<b>Elevation (feet)</b>	7,000	7,000+
<b>Slope (percent)</b>	10	40
<b>Water Table Depth (inches)</b>	N/A	N/A
<b>Flooding:</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Frequency</b>	N/A	N/A
<b>Duration</b>	N/A	N/A
<b>Ponding:</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Depth (inches)</b>	N/A	N/A
<b>Frequency</b>	N/A	N/A
<b>Duration</b>	N/A	N/A

### **Runoff Class:**

Negligible to medium.

## **CLIMATIC FEATURES**

### **Narrative:**

Average annual precipitation varies from approximately 14 to 18 inches, depending upon where the site is found. Year to year fluctuations in precipitation is common. Half or more of the precipitation occurring during the late fall through early spring period, often in the form of snow. The balance of the precipitation falls typically from mid June through September and is characterized by short-duration, high intensity thunderstorms.

The average frost-free season is about 103 days but is highly variable from location to location. The last killing frost in the spring occurs about June 1<sup>st</sup>, and the first killing frost in the fall normally occurs by October 1<sup>st</sup>. Lighter frosts may occur anytime in June and again in late August or early September. Average annual air temperature is about 50 degrees F. Monthly average air temperatures vary from 30 degrees F in January to just under 70 degrees F in August.

Both the air temperature and moisture regime of this climate favor cool-season vegetation.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

	<b>Minimum</b>	<b>Maximum</b>
<b>Frost-free period (days):</b>	81	112
<b>Freeze-free period (days):</b>	105	133
<b>Mean annual precipitation (inches):</b>	14	18

### **Monthly moisture (inches) and temperature (°F) distribution:**

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.79	1.00	11.1	48.2
February	.74	.81	15.0	51.6
March	.70	.85	18.3	58.3
April	.45	.65	22.3	66.4
May	.50	.56	28.5	74.5
June	.60	.74	36.3	83.6
July	2.37	2.99	46.7	84.3
August	3.15	3.29	45.5	81.1
September	1.81	2.01	37.8	77.8
October	1.15	1.57	26.5	68.8
November	.48	.84	16.3	57.3
December	1.03	1.21	11.2	49.8

**Climate Stations:**

Station ID		Location		Period	
				From:	To:
290818		Beaverhead Ranger Station, NM		01/01/39	12/31/00
295273		Luna Ranger Station, NM		01/01/14	12/31/00
294375		Jewett Ranger Station, NM		01/01/33	09/30/67

**INFLUENCING WATER FEATURES****Narrative:**

This site is not influenced by water from a wetland or stream.

**Wetland description:**

System	Subsystem	Class
N/A		

**If Riverine Wetland System enter Rosgen Stream Type:**

N/A

**REPRESENTATIVE SOIL FEATURES****Narrative:**

Soils are very shallow to shallow over bedrock and are derived from such parent materials as volcanic tuff. Surface textures are loams or sandy loams and are usually gravelly, stony, or cobbly. Permeability varies from moderately rapid to moderately slow. Available water-holding capacity is very low to low and runoff is medium.

**Parent Material Kind:** Alluvium

**Parent Material Origin:** Mixed

**Surface Texture:**

1. Very gravelly sandy loam
2. Cobbly loam
3.

**Surface Texture Modifier:**

1. Gravel
2. Cobble
3. Stone

**Subsurface Texture Group:** Clayey

**Surface Fragments  $\leq 3''$  (% Cover):** 35 to 60

**Surface Fragments  $> 3''$  (% Cover):** 15 to 35

**Subsurface Fragments  $\leq 3''$  (%Volume):** 35 to 60

**Subsurface Fragments  $> 3''$  (%Volume):** 15 to 35

	<b>Minimum</b>	<b>Maximum</b>
<b>Drainage Class:</b>	<u>Well</u>	<u>Well</u>
<b>Permeability Class:</b>	<u>Slow</u>	<u>Moderately rapid</u>
<b>Depth (inches):</b>	<u>7</u>	<u>20</u>
<b>Electrical Conductivity (mmhos/cm):</b>	<u>N/A</u>	<u>N/A</u>
<b>Sodium Absorption Ratio:</b>	<u>N/A</u>	<u>N/A</u>
<b>Soil Reaction (1:1 Water):</b>	<u>6.1</u>	<u>7.3</u>
<b>Soil Reaction (0.1M CaCl<sub>2</sub>):</b>	<u>N/A</u>	<u>N/A</u>
<b>Available Water Capacity (inches):</b>	<u>0</u>	<u>6</u>
<b>Calcium Carbonate Equivalent (percent):</b>	<u>N/A</u>	<u>N/A</u>

## **PLANT COMMUNITIES**

### **Ecological Dynamics of the Site:**

### **Plant Communities and Transitional Pathways (diagram)**

**Plant Community Name:** Historic Climax Plant Community

**Plant Community Sequence Number:** 1 **Narrative Label:** HCPC

**Plant Community Narrative:** Historic Climax Plant Community

Vegetation on this site is actually an expression of several closely interrelated and difficult to separate plant communities. Factors such as exposure, intermixed pockets of deeper soil, exposed bedrock, and ledges contribute to this association of plants.

Generally all exposures are open and are dominated by perennial grasses. Cool-season species are more prevalent on the north and east facing slopes, while blue grama, little bluestem, and sideoats grama are more frequently encountered on south and west facing slopes. Large shrubs and trees are few and scattered, and where recurring usually occupy north-facing slopes. Half-shrubs occur thinly across the site. Forbs include wildbuckwheat, trailing fleabane, lupines, sageworts, and Indian paintbrush.

Canopy Cover:

Trees, shrubs and half-shrubs

<5 %

Ground Cover (Average Percent of Surface Area).

Grasses & Forbs

25

Bare ground

20

Surface gravel

10

Surface cobble and stone and exposed rock

35

Litter (percent)

10

Litter (average depth in cm.)

2

**Plant Community Annual Production (by plant type):** \_\_\_\_\_

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	450	600	750
Forb	60	80	100
Tree/Shrub/Vine	48	64	80
Lichen			
Moss			
Microbiotic Crusts			
Total	600	800	1,000

## **Plant Community Composition and Group Annual Production:**

### **Plant Type - Grass/Grasslike**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	BOGR2	Blue Grama	120 – 160	120 – 160
2	MUMO	Mountain Muhly	80 – 120	80 – 120
3	FEAR2 POFE	Arizona Fescue Muttongrass	160 – 240	160 – 240
4	KOMA	Prairie Junegrass	24 – 64	24 – 64
5	MUWR PASM	Spike Muhly Western Wheatgrass	8 – 40	8 – 40
6	BOCU SCSC	Sideoats Grama Little Bluestem	40 – 80	40 – 80
7	2GRAM	Other Grasses	8 – 40	8 - 40

### **Plant Type - Forb**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
8	2FP	Perennial Forbs	24 – 64	24 – 64
9	2FA	Annual Forbs	8 – 40	8 – 40

### **Plant Type – Tree/Shrub/Vine**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	RHTR	Skunkbush Sumac	8 – 24	8 – 24
11	ARFR4	Fringed Sagewort	8 – 24	8 – 24
12	JUNIP	Juniper spp.	0 – 8	0 – 8
13	2SD	Other Shrubs	24 – 40	24 – 40

### **Plant Type - Lichen**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

### **Plant Type - Moss**

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production



### **Plant Type - Microbiotic Crusts**

<b>Group Number</b>	<b>Scientific Plant Symbol</b>	<b>Common Name</b>	<b>Species Annual Production</b>	<b>Group Annual Production</b>

Other species include: bottlebrush squirreltail, wolftail, threeawn spp., muhlenbergia spp., big bluestem, broom snakeweed, green sagewort, oak spp., and winterfat.

### **Plant Growth Curves**

**Growth Curve ID**    **1306NM**

**Growth Curve Name:**    **HCPC**

**Growth Curve Description:**    **Vegetation on this site is actually an expression of several closely interrelated and difficult to separate plant communities dominated by perennial grasses with scattered shrubs, half-shrubs and forbs.**

<b>Jan.</b>	<b>Feb.</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>
<b>0</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>10</b>	<b>10</b>	<b>25</b>	<b>30</b>	<b>12</b>	<b>5</b>	<b>0</b>	<b>0</b>

## **ECOLOGICAL SITE INTERPRETATIONS**

### **Animal Community:**

Habitat for Wildlife:

This site provides habitats which support a resident animal community that is characterized by deer, gray fox, eastern cottontail, sparrow hawk, mourning dove, horned lark, meadow lark, chipping sparrow, short-horned lizard, Sonoran gopher snake and prairie rattlesnake.

Elk range into the site and golden eagle and common raven hunt over it.

### **Hydrology Functions:**

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

#### **Hydrologic Interpretations**

<b>Soil Series</b>	<b>Hydrologic Group</b>
Coni	D
Tolman	D

### **Recreational Uses:**

This site offers recreation potential for picnicking, hiking, horseback riding, nature observation and photography. Camping opportunities can be good but the terrain may limit access to site.

Hunting is fair to poor for both deer and elk due to a lack of cover adequate to keep these animals on the site for extended periods of time. Natural beauty is strongly tied to the mountainous setting, which the site occurs.

### **Wood Products:**

This site has insignificant potential for wood products. What few trees or large shrubs might exist probably should not be harvested unless an increase or invasion of this type of vegetation resulting from a decline in condition takes place.

**Other Products:****Grazing:**

Better than 75 percent of the vegetation produced on this site comes from plants that produce forage for grazing animals, including domestic livestock. The site is best suited to late spring, summer or early fall grazing but may also be used in wintertime when weather conditions are not prohibitive. Yearlong, continuous use is not recommended, however. Wherever possible, a system of deferment that discourages grazing in the same season, year after year, should be instituted. Particular attention to spring/fall rest for cool-season plants and summer rest for those that are warm-season will help to maintain a healthy balance of vigorous plants on the site.

In addition to domestic livestock, deer, elk, small mammals, and birds use this site.

**Other Information:****Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month**

<b>Similarity Index</b>	<b>Ac/AUM</b>
100 - 76	3.2 – 4.1
75 – 51	3.8 – 4.8
50 – 26	4.5 – 9.0
25 – 0	9.0+

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

**Plant Preference by Animal Kind:**

**Animal Kind:** Livestock

**Animal Type:** Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Mountain Muhly	Muhlenbergia montana	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arizona Fescue	Festuca arizonica	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Spike Muhly	Muhlenbergia wrightii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Muttongrass	Poa fendleriana	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Prairie Junegrass	Koeleria macrantha	EP	D	D	D	D	D	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Big Bluestem	Andropogon gerardii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

**Animal Kind:** Livestock

**Animal Type:** Horses

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Mountain Muhly	Muhlenbergia montana	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arizona Fescue	Festuca arizonica	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Spike Muhly	Muhlenbergia wrightii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Muttongrass	Poa fendleriana	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Prairie Junegrass	Koeleria macrantha	EP	D	D	D	D	D	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Big Bluestem	Andropogon gerardii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

**Animal Kind:** Wildlife

**Animal Type:** Elk

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Mountain Muhly	Muhlenbergia montana	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Arizona Fescue	Festuca arizonica	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Spike Muhly	Muhlenbergia wrightii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Muttongrass	Poa fendleriana	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Prairie Junegrass	Koeleria macrantha	EP	D	D	D	D	D	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Big Bluestem	Andropogon gerardii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

**Animal Kind:** Wildlife

**Animal Type:** Deer

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Perennial Forbs	Various	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Most Annual Forbs	Various	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Oak	Quercus spp.	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

## **SUPPORTING INFORMATION**

### **Associated sites:**

Site Name	Site ID	Site Narrative

### **Similar sites:**

Site Name	Site ID	Site Narrative

### **State Correlation:**

This site has been correlated with the following sites: \_\_\_\_\_

### **Inventory Data References:**

Data Source	# of Records	Sample Period	State	County

### **Type Locality:**

State: New Mexico

County: Catron, Grant, Sierra, Socorro

Latitude: \_\_\_\_\_

Longitude: \_\_\_\_\_

Township: \_\_\_\_\_

Range: \_\_\_\_\_

Section: \_\_\_\_\_

Is the type locality sensitive?    Yes ☐        No ☐

General Legal Description: \_\_\_\_\_

### **Relationship to Other Established Classifications:**

### **Other References:**

Data collection for this site was done in conjunction with the progressive soil surveys within the Arizona and New Mexico Mountains 39 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Socorro, Catron, Sierra and Grant.

### **Characteristic Soils Are:**

Coni	Tolman
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### **Other Soils included are:**

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### **Site Description Approval:**

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester		Don Sylvester	

### **Site Description Revision:**

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	5/14/02	George Chavez	2/12/03